GOLD KING MINE SPILL TRANSITION STATEGY *August 17, 2015*		
SHORT TERM RECOMMENDATIONS		
TASK	TIMEFRAME	RESPONSIBLE
EPA continues to **support all impacted public water systems** with alternative drinking water sources, operations, and maintenance as needed until it is confirmed that each system can maintain treatment and production for the long term without negative impacts to the customers or the system infrastructure.	Current field activities are covering this element. Mark McCasland of the WQ Drinking Water section will remain in the field, until Tuesday August 18, to assist drinking water systems as well as EPA New Mexico Command with work related to this element.	Part of ongoing Region 6 response operations.
Once the potentially impacted sources are back in operation, a set of **entry point samples should be collected** by the operator to confirm that the first customer is being served water that meets drinking water standards and that EPA cover the costs of these analyses for the systems.	EPA will be collecting those samples based on when the post event river water has been finished and is on its way to the first customer. This time period will vary significantly from system to system and could be up to 100 days from now.	Part of ongoing Region 6 response operations.
• The flushing and clearing of any contaminated soil in **irrigation ditches** should be complete prior to opening intakes, if possible, or should be coordinated with public water systems to ensure intakes are not open during flushing or removal procedures. • Public water systems with supplemental **groundwater wells** in the impacted area	Completed	• State and Local agencies. • Completed by EPA.

should submit samples for analyses for confirmation that the well water has not been impacted before serving to customers.		
Five days of EPA and NMED surface water sample results received to date are meeting **drinking water standards for metals** potentially introduced into these reaches. Since these public water systems are not designed to treat for metals, this will indicate that the surface water source is treatable without unintended consequences and that systems can treat and produce water that will meet drinking water regulations.	Exceeded five days requirement and currently continue to sample. Current data (surface water and sediment) show metal levels that are lower than screening levels. Surface water metal levels were compared to New Mexico water quality standards as well as drinking water MCL's and have found that the levels from samples collect during and after the plume moved through the area below those levels.	Part of ongoing Region 6 response operations.
• **Raw surface water** should only be pumped during times of no precipitation and low turbidity at this time. • **Guidance** should be provided by EPA and NMED DWB to water system operators of surface water intakes for all affected water systems on when to close intakes during any future storm events and to monitor pH, conductivity, turbidity, and alkalinity. Systems should receive guidance as to critical turbidity levels at which they should shut intakes during storm events or other occurrences that result in increased turbidity. A source water sample for contaminants of concern should be collected during the storm event and intakes should remain	• Does the State have historical data that would show low pre-event turbidities that could be used as a baseline? • Drinking water systems have their own protocol to anticipate high turbidity times that are due to events further upstream. For some systems this includes they watch USGS stream gauge data as well checking weather reports. Systems already have a range of water quality that they can treat effectively. The system should already know the operational parameters of the treatment trains and design capacity of the system and what ranges of pH, conductivity, turbidity, and alkalinity in which the system can function appropriately. The "worst case"	NMED is looking into historical data on how turbidity effects operation of water systems. How is Region 8 (Area Command) addressing similar concerns in Colorado?

closed until field parameters return to pre-storm event levels. EPA should continue pay for routine source monitoring including the metals analyses at public water system intakes during storm events.	samples (surface water collected as the plume moved through areas that was analyzed for Total metals) showed that metal levels met or were below WQ standards and MCL's. Sediment samples in the area are below screening levels and surface water samples for both total and dissolved metals shows that the levels are below MCLs.	
Operational Requirements: DWB recommends that system operators participate in determining spill impacts by maintaining comprehensive records once intakes are open: • Maintain a spreadsheet with records of raw water quality to be submitted with monthly operating reports (MORs) to include pH, turbidity, conductivity, total suspended solids, and alkalinity. • Track and maintain records of when and why the raw water intakes are closed for the next quarter or longer. • Maintain records of pre and post event chemical dosages that were required to meet turbidity standards. • Calibrate equipment including field equipment, more frequently and maintain calibration logs as required: o Daily calibration of pH meters o Weekly calibration comparison checks with	No comment this is a good practice that systems should already be doing.	NMED and local public water systems.

primary or secondary standards for turbidimeters and chlorine meters ○ Quarterly calibrations are full calibrations with primary standards of turbidity and chlorine meters.		
LONG TERM RECOMMENDATIONS		
TASK	TIMEFRAME	RESPONSIBLE
Long term Sediment Impacts: • The impacts of processing and treating source water with such increased levels of contaminated sediment are unknown. *EPA would continue to monitor sediment quality and assume responsibility for any future damages/repairs to treatment facilities that may result from the contaminated sediment.* • The DWB will need confirmation that the metals reported in the sediment samples are not considered to be at hazardous levels.	• Ongoing. • Needs a definite timeframe for completion or transition back to delegated program? • Does EPA currently provide funding through delegated programs to address this? • Does the State or local program currently have the capacity to do this in-house? • The EPA has developed incident specific recreational criteria that will be used to compare sediment results.	• This is a long term recovery function that is beyond the response. • Completed
• The DWB requests that EPA continue **sediment and suspended sediment monitoring** in the Animas, including the reach in Colorado because it represents what will likely be mobilized into New Mexico waters, potentially during this upcoming monsoon season.	• Needs a definite timeframe for completion or transition back to delegated program? • Does EPA currently provide funding through delegated programs to address this? • How is Region 8 (Area Command) addressing similar concerns in	This is a long term recovery function that is beyond the response.

	Colorado?	
EPA will periodically empty existing accumulated sludge in **sedimentation basins (or segregate sludge)** so that post Gold King Spill sludge can be isolated in the event that a Toxicity Characteristic Leaching Procedure (TCLP) is required in the future.	• EPA does not have baseline sludge samples or baselines for operation that would allow us to differentiate what damages were caused by this event versus other factors. • NMED is researching historical information available on sedimentation pond sludge disposal waste profile.	This is a long term recover function. What is the current protocol followed by the water system operators? This concern could potentially be addressed under Superfund (removal or remedial if GKM site ranked) or under a claim by the water systems to the government.
Aquifer Condition: EPA should continue with follow up monitoring of the same analytes in the source water for potentially impacted public groundwater wells after typical pumping has occurred.	All the surface water samples to date indicate that the dissolved metals are all below the New Mexico WQ standards and are below MCLs. Therefore the spill would not negatively impact the aquifer.	At the request of water system operators EPA would sample public water wells.
River Condition: Routine stream sampling with the same analytes should continue by the EPA in order to monitor water quality changes with stream flow changes. Ideally, monitoring stations could be set up at the USGS stream gage stations upstream to provide an alert to trigger operators to close intakes when a significant increase in flow occurs, as well as provide an automatic sample collection during those significant events. If this is not possible another notification process should be developed by the EPA recovery team.	Drinking water systems have their own protocol to anticipate high turbidity times that are due to events further upstream. For some systems this includes they watch USGS stream gauge data as well checking weather reports. If they already had a protocol for events that had the potential for high turbidity pre-event then why would a new notification system be needed?	What is the current protocol followed by the water system operators? NMED is looking into historical data on how turbidity effects operation of water systems. How is Region 8 (Area Command) addressing similar concerns in Colorado? Does EPA currently provide funding through delegated programs to address this? What systems are currently in place (NMED or USGS) or what systems are available elsewhere (New Orleans early warning system, VIPER) to augment the current system?

REGION 6 FIELD RESPONSE OPERATIONS		
TASK	TIMEFRAME	RESPONSIBLE
Delivery of alternate water supply and hay for irrigation and livestock.	Ongoing as needed until system stabilized. Due to the capacity of the systems, large systems such as Farmington may take up to 100 days to stabilize.	EPA Region 6 field response operations. May need to identify other resources beyond the response to complete this task.
Temporary water system connection (Farmington to Morningstar).	Ongoing, will be completed 8/18.	EPA Region 6 field response operations.
Surface water and sediment sampling.	Ongoing. Continue sampling until we receive five days of validated data.	EPA Region 6 field response operations.
Private drinking water sampling.	Completed.	EPA Region 6 field response operations.
Irrigation ditch sediment sampling.	Completed.	EPA Region 6 field response operations.

REGION 6 REOC ACTIVATIES		
Data Management Data evaluation and Messaging.	Ongoing.	REOC ENVIRONMENTAL UNIT (10)
Incident/response reporting.	Ongoing. Will continue at diminished levels over the next week and a half.	REOC PLANNING SECTION (8)
Finance and resource tracking.	Ongoing. Will continue at diminished levels over the next week and a half.	REOC FINANCE SECTION AND RESOURCE UNIT (3)
Water systems technical experts.	Ongoing. Will continue at diminished levels over the next week and a half.	6WQ STAFF (3)